OPHTHALMOLOGY.

UNDER THE CHARGE OF

EDWARD JACKSON, A.M., M.D.,
OF DENVER,

AND

T. B. SCHNEIDEMAN, A.M., M.D.,
PROFESSOR OF DISEASES OF THE EYE IN THE PHILADELPHIA POLYCLINIC.

Etiology of Myopia.—PROF. WIDMARK, Stockholm (*British Medical Journal*, November 1, 1902), criticises the commonly accepted view that convergence is the most important factor in the origin of myopia. His criticism of the theory of convergence is based upon the following thesis, which he thinks his observations warrant: If by any cause the sight of the one eye is weakened in early childhood, myopia is developed exclusively or principally in the other (strong) eye, whether the first-named takes part in fixation or passes on to convergent or divergent strabismus. If one of the eyes is lost a typical myopia may be developed in the remaining eye. He thinks the chief cause of myopia is "seeing" in a limited sense—*i. e.*, perception in the retina, particularly in the yellow spot and the processes connected therewith at the posterior pole of the eye. Whatever these processes may be, the effort of discerning objects quickly following each other, as in reading or writing, might lead to hyperæmia, which may become a predisposing cause of the myopic changes at the posterior pole. Based upon this view, myopia is to be prevented only by facilitating the work of the retina. Correcting glasses are the most useful means at our command, not by lessening the pressure of the muscles of the eyeball on any of the vertex veins, or by lessening the strain on the optic nerve at the posterior pole, but chiefly by facilitating binocular fixation, and thus contributing to a clear image of the fixed object at the fovea. Moreover, correcting glasses improve the position of the body during near work and increase the distance for accommodation.

The Course of the Fibres in the Optic Nerve as Shown by Their Degeneration after Experimental Lesions of the Retina.—PARSONS, London (*British Medical Journal*, November, 1902), produced in the retinæ of monkeys lesions with a Graefe knife, 1 to 3 mm. long, transverse to the general direction of the nerve fibres, in different quadrants of the retina. Two to three weeks later the animals were killed; the eyes, optic nerves, and brain were prepared and examined, with the following results:

1. The degenerated fibres in the main retain the same position along the whole course of the nerve; that is, the nasal fibres keep to the inner side of the nerve, and the temporal to the outer side. There are usually some outlying fibres degenerated, probably due to the operative disturbance of the vitreous.

2. There are invariably some degenerated fibres in the optic nerve of the opposite side. This result confirms the previous experiments of Pick, and of Dean and Usher on the rabbit by the ordinary Marchi method. These fibres tend to occupy the homonymous side of the opposite nerve. They are probably collaterals of the fibres in the nerve of the injured side, and are, perhaps, distributed to physiologically corresponding parts of the opposite retina.

3. The fibres from the macular region pass from the temporal side of the nerve anteriorly toward the centre as they pass back.

4. In all cases there is degeneration in both optic tracts. The degeneration in the opposite tract in temporal lesions is slight, but definite. As far as the method is capable of showing it consists of fine fibres, probably collaterals of the fibres in the nerve of the injured side.

5. The fibres spread out as they pass back in the tracts, and are distributed over their whole area posteriorly. Most go to the external geniculate body, some to the optic thalamus, and a few to the superior corpus quadrigeminum.

6. In many cases there was apparent degeneration among the fibres of the roots of the third and fourth nerves. These were probably fatty globules in lymph channels, as in some of Marchi's early experiments, and not true degenerations.

The Immediate Treatment of Wounds of the Eye.—SNELL (*Quarterly Medical Journal*, May, 1902) remarks upon the importance of prompt treatment of wounds of the eyeball and lids. The importance of early treatment is especially shown in wounds implicating the edges of the eyelids. Neglect may result in more or less deformity. When the eyeball is wounded thorough cleansing of the outside, as well as the inside, with sublimate or other antiseptic solution is essential. A simple and efficient irrigator is a pledget of cotton-wool saturated with the solution. Sympathetic ophthalmia seems to be less frequent in recent years than formerly; this happy result may be justly ascribed to the use of antiseptics and the immediate treatment of injuries.

Clean-cut wounds of the cornea usually heal readily if the iris is not engaged therein. The more important cases are those in which the iris has become prolapsed or entangled. These require immediate treatment. The method formerly in vogue was to leave the prolapse alone, but this means frequently a protracted recovery at the best, and not infrequently, unfortunate results ensue, even at a remote period. Among these may be mentioned recurring irritability of the eye, with gradual loss of any vision at first recovered, increased tension (secondary glaucoma), and sympathetic mischief in the fellow eye, especially if the injury has involved the ciliary region. The attempt should be made to replace the prolapsed iris or to clear the wound of any entangled portion by means of a spatula. If this proves ineffectual, as it often will, the prolapsed portion should be incised. It is more difficult to remove a part of the iris when it is merely entangled in the wound. It is often necessary to excise a portion, first from one lip of the wound and then from the other. Following this atropine is usually better than eserine, unless the wound be toward the periphery. It is especially important to remove a part of the prolapsed or entangled iris if the wound encroaches on the ciliary region. In wounds of the sclera the writer advocates suturing the conjunctiva over it. The sclerotic wound becomes thus a subcutaneous one. If a foreign body is lodged in the eye or a traumatic cataract has been produced treatment in the first instance must have regard to those conditions.

The Cortical Centres of Vision as Demonstrated after Enucleation or Atrophy of the Eyeball.—GALLEMAERTS (*Bull. de l'Acad. Royal de Méd. de Belgique*, vol. xvi., No. 4) formulates the following conclusions: 1. After enucleation or atrophy of one eyeball the fact that partial decussation of the nerves takes place is demonstrated by atrophy of certain cells in both occipital lobes. 2. This cellular atrophy is more pronounced on the side opposite that of the missing eyeball. 3. The atrophy is especially limited to the region of the calcarine fissure, the lingual lobe, and cuneus, involving these parts to an extent varying in different subjects. 4. The visual zone is limited to the region of the calcarine fissure, the lingual lobe, and the cuneus. It occupies neither the descending gyrus nor the fusiform lobe, and still less the angular gyrus. 5. All the cellular layers of the visual zone participate after the lapse of a certain time in the atrophy. 6. The ribbon of Gennari or Vicq d'Azyr cannot be considered as an exclusively optic region.

Treatment of Ophthalmia Neonatorum.—FROMAGET (*Journal de Méd. de Bordeaux*, 1902, No. xix.) observes that this disease with the vague and inexact name may be caused by the streptococcus, the pneumococcus, and many other species of microbes, but the gonococcus is the commonest and most dangerous. This ophthalmia is at first a purulent conjunctivitis. The cornea is never primarily diseased, but only as a complication. This complication does not occur in skilled hands when the disease is treated from the beginning. When the cornea does become involved the worst results are to be feared. Every case properly treated from the beginning should recover without corneal involvement.

[This statement is rather too sweeping. It unfortunately occurs, though happily rarely, that the cornea does become involved in spite of prompt and proper treatment.—ED.]

There are two indications for the physician and midwife: 1. Prophylaxis. 2. Efficient treatment from the beginning. As regards prophylaxis, the principal obstacle is the obstinacy of many midwives and even physicians in refusing to recognize the danger. They consider the reddening eyes to be "only a cold" which will get well of itself. A terrible catastrophe is necessary to drive the lesson home.

In the treatment nitrate of silver is sometimes abused. This agent is not only an antiseptic, but also a caustic. Strong solutions frequently repeated may injure the corneal epithelium. The whole treatment is directed against this very thing. By all means avoid every injury of the corneal epithelium. It is surprising to observe the resistance which the epithelium of the cornea offers to the infection; how, though bathed in pus, it preserves its precious lustre, which seems to defy the attacks of the disease; but let there occur the slightest solution of continuity, the smallest chemical or physical wound, and the infection invades the transparent membrane whose protecting cuirass is broken. An essential part of the treatment consists in ridding the conjunctival sac of pus. The pus adherent to the lids is first washed off, and the retained pus is expelled by gently opening and closing the lids. This constitutes the external toilet, which can be done by anyone. It is to be followed by lavage of the conjunctiva, a therapeutic measure of prime importance. Permanganate of potash in 1 per cent. solution, subsequently reduced to 0.50 or 0.25 in boiled or borated water, is as good as any medicament for the purpose. This solution is neither irritating nor painful, like formalin or sublimate, and its germicidal quality is well known. It does not injure the cornea. The discoloration of the skin caused by it can be removed by solution of bisulphide of soda, 10 or 20 per cent. To properly irrigate the conjunctival sac the lids must be separated by the hands if the œdema is not too great. The child's head must be immobilized; one or two assistants may be necessary. If the lids cannot be properly separated by the fingers, lid retractors should be used, so that the whole conjunctiva may be given an antiseptic bath. Sterilized tampons of absorbent cotton are dipped in the warm solution and squeezed, so that the liquid flows over the whole sac. Rubber bulbs and syringes may also be used, but with these great care is necessary to prevent splashing into the attendant's eye. There is no such danger with the tampon. If retractors are used they should only be employed by an experienced hand, otherwise the corneal epithelium may be scraped. How abundant should these washings be? Should litres be poured over the conjunctiva? Not at all. When the sac has been thoroughly cleansed of pus and the liquid flows out clean, more is useless and may be dangerous from positive injury of the cornea by the instruments. After the conjunctival baths the lids are to be carefully turned back and the swollen conjunctiva lightly sponged with warm tampons to remove the false membranes which result from the coagulation of purulent masses. The washings should be made each time before the child nurses. After-improvement begins every four or five hours, subsequently at longer intervals. These irrigations are very important, and certain benign cases are greatly improved thereby, but they cannot assure recovery alone.

An agent capable of affecting the pathogenic microbes, even when in the epithelial cells, is to be brought upon the surface of the palpebral and ocular conjunctiva. This agent is nitrate of silver. Many oculists recommend its employment in strong solutions—2 and 3 per cent. Precaution must be taken to avoid injuring the cornea by the caustic. A solution of chloride of sodium should be used to thoroughly neutralize any excess of silver. If so used the conjunctiva is cleansed as above described, the upper lid being completely everted is painted with the silver, the lower remaining in position to protect the cornea. The upper lid is to be turned back before proceeding to cauterize the lower; but this plan has one element of danger, namely, the risk of injuring the cornea, notwithstanding every precaution. The writer, therefore, recommends cauterization by means of the solid stick. This only reaches the spots intended. It dissolves slowly enough, so that it can be quickly neutralized. The cauterizations are to be repeated daily until the subsidence of the inflammation, as shown by the diminution of the œdema and the ability of the child to open its eyes. As the stick cannot reach the cul-de-sac and deep folds, the cauterization is to be followed by a large instillation of a 1 per cent. solution of nitrate of silver, seven or eight drops. This is free from danger, and can be used by any physician or capable nurse. In cases treated from the start and all mild ones such instillations repeated twice daily suffice without the use of the stick. When the child for any reason cannot be seen by the physician, weak solutions, 0.01 to 0.05 per cent., can be used by the nurse three times a day, following irrigation with permanganate. The stick is to be reserved for severe cases with great œdema and profuse suppuration.

The crux of the treatment is the irrigation. The difficulty is to have this properly performed. Efficiency without violence is the secret. When the pus has disappeared the silver may be replaced by astringent collyria of sulphate of zinc. The strength of the permanganate is to be reduced and finally replaced by borate of soda in solution. The eye should never be bandaged. The outflow of pus is to be favored and not restrained. The margins of the lids may be oiled with an ointment of simple vaseline or yellow oxide of mercury or aristol. Iodoform is to be avoided, being frequently an irritant.

PATHOLOGY AND BACTERIOLOGY.

UNDER THE CHARGE OF

SIMON FLEXNER, M.D.,

PROFESSOR OF PATHOLOGY, UNIVERSITY OF PENNSYLVANIA.

ASSISTED BY

WARFIELD T. LONGCOPE, M.D.,

RESIDENT PATHOLOGIST, PENNSYLVANIA HOSPITAL,

AND

F. P. GAY, M.D.,

ASSISTANT DEMONSTRATOR OF PATHOLOGY, UNIVERSITY OF PENNSYLVANIA.

On the Pathological Changes in Hodgkin's Disease, with Special Reference to its Relation to Tuberculosis.—DR. DOROTHY M. REED (*Johns Hopkins Hospital Reports*, 1902, Nos. 3, 4, and 5, vol. x. p. 133) states that since Hodgkin first described, in 1832, the peculiar enlargement of the lymphatic glands, the exact nature of the pathologcal changes in the glands and the cause of their lesions has been the subject of much discussion. At various times the disease has received different synonyms. Progressive multiple gland hyperplasia (Wünderlich, 1858), lymphosarcoma (Virchow, 1864), pseudoleukæmia (Cohnheim, 1865), adenia (Trousseau, 1865), and malignant lymphoma (Billroth) have all been used to designate this affection. Delafield, in 1887, reported a case of primary tuberculosis of the lymph glands simulating pseudoleukæmia, and other authors have made similar observations. Sternberg found tuberculosis in eight out of thirteen autopsy cases